

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Takashi Hirokawa, et al.

Application No.: 10/543, 039

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For: AGRICULTURAL AND HORTICULTURAL WATER DISPERSIBLE GRANULE

Confirmation No.: 7330

Art Unit: 1616

Examiner: Chui, Mei Ping

DECLARATION UNDER 37 CFR § 1.132

Commissioner for Patents

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Alexandria, VA 22313-1450

Dear Sir:

I, Yoshio Nakamura, hereby declare and state that:

1. I am a citizen of Japan, residing at 990-1 Hosoe makinoharashi Shizuokaken, Japan.
2. I am fully familiar with the subject matter of the U.S. patent application identified above as well as the references relied upon by the Examiner in the prosecution of this application.
3. I obtained a Master's degree from Konan University, Department of Natural Science, Chemistry, in March 1993.
4. I am currently employed by Nippon Soda Co., Ltd., and began working for Nippon Soda Co., Ltd., in April 1993, whereat I have engaged in research and development relating to process of preparing organic compound, and formulation of agrichemicals.
5. I conducted the following tests in order to compare an effect of acylated amino acids in terms of the dispersibility in the presence of a carrier and an agricultural chemical compound of which the melting point is less than 70°C to that under the same

conditions except that an agricultural chemical compound of which the melting point is more than 70°C was used instead of the agricultural chemical compound of which the melting point is less than 70°C.

## METHODS

### (Preparation of Samples 1 to 4)

- a. 5 g of each composition of which components are shown in Table 1 was put in a mortar and then uniformly pulverized with a pestle.
- b. Each pulverized composition put on the mortar with the pestle was placed on a measure and then the measure was reset to zero.
- c. The pulverized composition was kneaded while adding water bit by bit until the pulverized composition was clayey aggregated.
- d. Each total mass of the clayey aggregated composition, the mortar, and the pestle, was measured using the measure, and the amount of the bound water used was calculated.
- e. Each clayey aggregated composition was extruded from a screen (SUS board) with a bore diameter of 0.7 mm using the pestle (or a spatula) to obtain a vermicelli-like granulated particles.
- f. The obtained granulated particles were air-dried on a tray until the surface thereof was dried, and then put in commercially available packs, usually to be used by being filled with tea-leaves, and dried using a fluidized-bed drier at 50°C for 30 minute.
- g. The obtained granules were crushed in a dish using a spatula and then subjected to sieving to produce each water dispersible granule having a particle size of 125 to 425  $\mu\text{m}$  as each sample 1 to 4.

Table 1

Components (% by mass) \ Sample No.	1	2	3	4
PYRIBUTICARB (mp: 85.7~86.2°C)	30	30		
CARPLEX XR	30	30		
BELLKUTE (iminotadine trisalbesilate /CARPLEX XR = 1/1 adsorbed product) (mp: 60°C)			60	60
KUNILITE 201 (Diatomaceous earth)	10	10	10	10
AMISOFT HS-21 (disodium N-stearoyl-L-glutamate)	20		20	
AMISOFT CS-11 (sodium N-coconut oil fatty acid acyl-L-glutamate)	10		10	
VANILEX N (Partially-desulfonated sodium lignin sulfonate)		30		30
Total	100	100	100	100
Bound water	44.6	53.6	19.4	32.6

## (Dispersibility Test)

200 mg of each sample were put in a 100 mL stoppered messcylinder with 35 mL of space volume, and then 100 mL of standard hard water based on official testing methods for agricultural chemicals of Japan ( $\text{CaCO}_3=30.77 \text{ mg/L}$ ,  $\text{MgO}=9.2 \text{ mg/L}$ , 53.6 ppm hardness, expressed as  $\text{CaCO}_3$ ) was added thereto. Then, the messcylinder was inverted 30 times for one minute. After the messcylinder was placed still for 1, 5, and 30 minutes, the amount of deposits was measured. The results thereof are shown in Table 2.

## RESULTS

Table 2.

Deposit amount (ml)	1	2	3	4
1 min.	0.2	0.5	0.02	0.7
5 min.	0.5	0.5	0.08	1.4
30 min.	0.8	0.5	0.15	1.5

As shown in Table 2, the deposit amount of Sample 4 was greater than that of Sample 2. In contrast, the deposit amount of Sample 3 was significantly less than that of Sample 1. Thus, the decrease in the deposit amount of Sample 3 relative to Sample 4 was significantly large degree in comparison with that of Sample 1 relative to Sample 2. In other words, the acylated amino acids unexpectedly improved the dispersibility in the presence of an agricultural chemical compound of which a melting point was less than 70°C in comparison with the case when used in the presence of an agricultural chemical compound of which a melting point was more than 70°C.

## CONCLUSION

The combination of acylated amino acids and an agricultural chemical compound of which a melting point was less than 70°C unexpectedly improved dispersibility in comparison with the combination of the acylated amino acids and an agricultural chemical compound of which a melting point was more than 70°C.

6. I fully understand the content of this declaration.
7. I, Yoshio Nakamura, the undersigned declarant, declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine, imprisonment, or both, under section 1001, of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 19 day of June, 2009.

Yoshio Nakamura

(Yoshio Nakamura)